

WATERSHED WRAP

Quarterly Newsletter from the Coeur d'Alene Tribe's Fish & Wildlife Programs describing watershed management efforts. Offering readers food for conversation and paper for wrapping!

Winter Solstice 2007

(Vol. 11 No. 4)

This publication is intended to provide all people interested in fish and wildlife of the Coeur d'Alene Reservation information about program work efforts and to solicit your support as well as constructive criticism.

Thank you for your interest.

ATTENTION:

Hangman Creek Watershed Workgroup
Meeting at Tensed Grange Hall
6:00 p.m. on Tuesday, January 22nd
Review draft plan for *hnt'k'wipn*
property management
Any questions call Bruce Kinkead, 208-
686-6071 or Gerry Green 686-0312

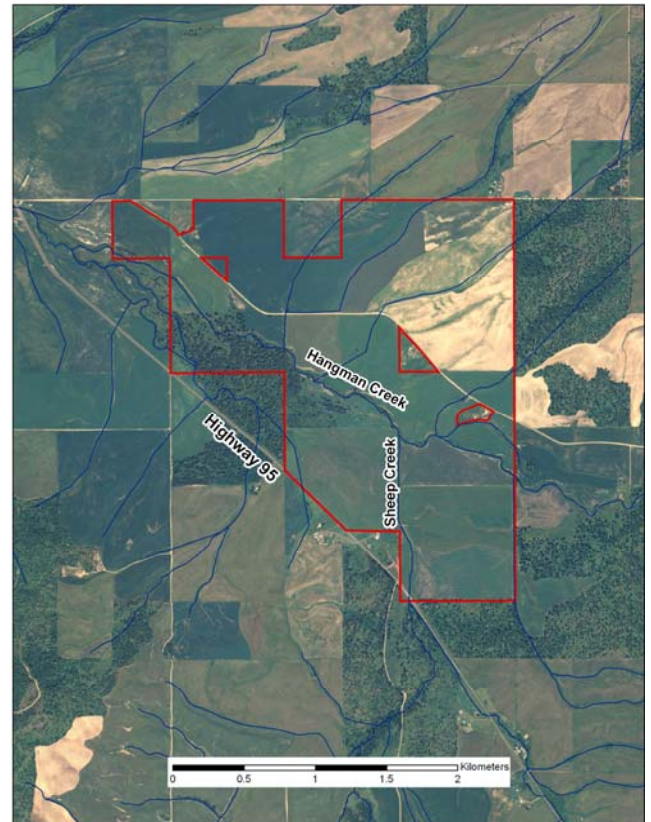
Hangman Restoration Project Update

By Gerald I. Green, Wildlife Mitigation Biologist

The Hangman Restoration Project manages approximately 1,195 acres referred to by Tribal Elders as *hnt'k'wipn* (Figure 1). The property is about a mile upstream of the Highway 95 crossing of Hangman Creek near DeSmet. The property surrounds the Sheep Creek/Hangman Creek confluence and has the potential to support a variety of native wildlife habitats that will in turn support a wide variety of native wildlife and plant species once they are restored.

The Hangman Restoration Project has completed the first draft of the *hnt'k'wipn* Management Plan. Staff members of the Tribal Wildlife Program are completing an internal review of the Plan. And the Bonneville Power Administration, which holds a conservation easement on the property and will be funding much of the management, has submitted several comments that can readily be incorporated into the Plan. Once these final edits are made, the *hnt'k'wipn* Management Plan will be released to the public for review and comment. Once the plan is fully accepted, it will guide management actions on the property.

The Management Plan calls for the reestablishment of native wetlands and stream courses within the property. According to the Plan, Sheep Creek will be realigned to more closely follow its original channel. Also, the network of drainage ditches that cross the floodplain within the property will be filled in. This work is scheduled to begin in 2009, with preliminary engineering to be completed in



hnt'k'wipn property is marked in bold black in this aerial photo.

2008. All landscaping will be completed before any attempts are made to establish native vegetation.

Roughly eighty percent (80%) of *hnt'k'wipn* is currently devoted to agricultural production. The production of agricultural crops is counter to the long term purpose of the property, but serves the short term function of keeping noxious weeds at a minimum until restoration efforts can be initiated. The Management Plan lays out a stepwise process for restoration, taking small chunks of the property and initiating restoration activities so we can establish a pattern of success. If we tried to tackle the restoration of the entire property in a few years we would no doubt encounter major complications and possibly failure. But if we start with small areas, we can identify a process that works and adjust that process as more and more segments of the property are treated with restoration

actions. In 2008, we begin planting native grasses on 30 acres. Planting native grasses can be viewed as the first wave of vegetation restoration efforts on a given site. If grasses successfully establish, native forbs and shrubs will be planted among the grasses in 2009. If not, we will identify why grass establishment was not successful and adjust our techniques. At this point we are planning to expand the native grass seeding to about 300 acres in 2009. More areas will be moved into native vegetation with each passing year until the entire property is converted back to native habitats.

There are many aspects of management that must be covered by the hnt'k'wipn Management Plan. Involvement by local residents, neighbors and concerned members of the public is an important part of ensuring that all issues are addressed. We expect the current edits to the Management Plan to be completed in January. We also expect to hold a public meeting in Tensed on January 22, 2007 to officially present the Management Plan to the public for review. If you would like to discuss the management plan being developed for hnt'k'wipn (the Hangman Mitigation Properties), or would like to a look at the preliminary draft, please feel free to call Gerald Green at 208-686-0312 or Cameron Heusser at 208-686-5521 to discuss these or other Hangman Valley related issues. ♦



Tree protection cones for conifers planted along Nehchen Creek in 2007

Hangman Creek: Tree Protection Challenges

By: Bruce Kinkead, Fisheries Biologist

Once the grant proposals, budget submittals, and habitat assessments were done, members of the Coeur d'Alene Tribe's Fisheries Program actually got to begin the ground restoration work that improves fish and wildlife habitat. You would think that the wildlife that we are entrusted to help would be as excited as us to see the improvements and support our efforts. You might not

know that we are often as frustrated as private landowners when the wildlife causes enough grief to lead to hair loss. Animals like gophers, porcupines, beaver, deer, elk, and moose cause a variety of problems including the loss of trees planted in the spring and fall.

Add to that the potential for floods to wash away trees planted in the riparian zone, ATV damage, competition from non-native grasses, and the hottest July in recorded history, and we find that we must adapt our methods to the unique and changing conditions in the watershed.

Planting conifers in the spring has generally gone well in the Hangman watershed. Typically we plant the last week of April and the first week of May. Douglas fir, Ponderosa, White pine, Lodgepole pine, Cedar, and Spruce have all been planted with varying success. Aside from Lodgepole pine, which we planted only one year, survival rates for first year trees are around 75 percent. Cedar has done particularly well in the shaded areas of Indian Creek despite the heavy concentration of elk in the area. Conifers planted in 2007 on Nehchen Creek have also done remarkable well. With fall bringing down the grasses, hundreds of new conifers can now be seen, however, not in time to install protective tubing; but still alive. Conifer losses have been more significant along the main stem of Hangman Creek in the "Sweatlodge" area (T1030) where rodents have pulled down some conifers from below, and while others likely died from the extreme heat and dry conditions found this past summer. Ponderosa pine is not generally considered a riparian tree but does remarkably well in the Hangman Valley within the floodplain, and, in particular, along the main stem of Hangman Creek.

Potted deciduous trees have been another story and continue to educate us. The beaver provide wetlands that otherwise would not be present in Hangman Creek allowing the water to slowly percolate into the ground water. As much as we like them the primary source of frustration much like a bear near a garbage can be. Newly planted saplings have been dragged into the water within 24 hours of planting. It became obvious that we needed to protect these trees before leaving the site. Simple plastic tree cones are no match for a hungry beaver, so we began using chicken wire and a wooden stake. After that the beaver would just push the chicken wire over to one side. This ended a lot of effort for 1 and 2-gallon trees. However we observed that 5-gallon trees had a much better survival rate.

Waist high Reed Canary grass would also out-compete the smaller trees. We started using two stakes and planting more of the larger 5-gallon trees and this proved much more successful. Of course if the beaver really wanted it, he would dig up underneath the

chicken wire. In addition to the beaver the next spring we saw that the chicken wire was catching a lot of debris from floods and was bent over and killing the trees. Flood waters in Hangman Creek have been known to rise 10 feet at State line in a single 24 hour period, so it is difficult to get trees to grow close enough to the water but up the bank enough that floods won't wash them out before they get established and it was obvious the chicken wire was causing losses during these flood events. This year we placed repellent "bitter" pills into the pots prior to planting without any chicken wire. This technique will discourage deer, elk, and moose from foraging on these newly planted trees but not beavers who do not mind the bitter taste. Big game can also kill trees even if they are not eating them. Potted plants only planted a few weeks ago were severely damaged by deer scraping their antlers on the bark just days after planting.

After three years of planting vegetation along Hangman Creek, we have modified our strategies to increase the survival of plants and to decrease costs. We started planting willow shoots in summer 2007 and look to increase the proportion due to high survival rates. They can be planted deep and trimmed near the surface, they are not susceptible to beavers pulling them up, deer grazing or scraping them; and if planted deep enough will not die from lack of water. All the initial energy of the plant is used to generate roots, so floods should not be a problem. We will provide protective tubing for potted deciduous trees unless planted in a major flood area where we will have to live with low survival rates. Well-established trees will likely receive protection, from beavers, using chicken wire to prevent destruction of tree but otherwise we will continue to "feed the beavers." If conifers continue to have high survival rates it is possible we may not use as many protective tubes as in the past.

Sometimes it's trial and error when getting the most efficient use of limited funds. It is very rewarding to see trees begin to change the landscape and provide hope for the future for fish and wildlife in Hangman Creek. ♦

Tribal Forest Carnivore Study Update

By Nathan Albrecht, Fish and Wildlife Biologist

In the fall of 2005, the Tribal Wildlife Program was awarded a grant by the US Fish and Wildlife Service for a project aimed at detecting the presence of fisher and lynx throughout the Ceded Territory of the Coeur d'Alene Tribe. This project has been discussed in previous issue of the Watershed Wrap (Winter Solstice 2006, Vol. 10 No. 4). The fieldwork for this project is now complete, and the initial results are encouraging.



Eric Hendrickson and Brant Philips out in the field

Two wildlife technicians, Brant Phillips and Eric Hendrickson, worked approximately 1000 hours over the past 2 years deploying and collecting hair snares throughout the Ceded Territory. While the project area was initially the southern portion of the Ceded Territory (south of I-90), due largely to their efficiency, there was enough time and funding remaining to expand the project to the northern portion as well. As a result, it can now be said that the majority of the best potential forest carnivore habitat within the Ceded Territory has been surveyed.

Hair snares have been set as far north as Sandpoint, and as far south as the Dworshak Reservoir. To date, a total of 625 hair snares have been deployed. A total of 278 (44.5%) of these snares were successful in collecting samples. Bears disturbed approximately 18% of the snares. A total of 625 individual hair samples have been sent to the lab for DNA analysis, and 299 of these samples have been analyzed so far. Of these samples, 34 (11%) have been fisher, 51 (17%) have been American marten, and 1 has been a lynx. These initial results are very encouraging. The results from the 2007 field season are still being analyzed.

Some of the results of this project are already beginning to lead to additional research. Biologists from the Idaho Department of Fish and Game (IDFG) had been planning a fisher radio collaring effort for the past couple of years. Their research was going to be focused primarily on the Clearwater National Forest. Based on some the initial results of the Tribe's current project, namely finding fisher in several drainages on the St. Joe National Forest, IDFG contacted the Tribal Wildlife Program to potentially assist them in expanding their trapping and collaring effort. Some of the Tribal Wildlife staff will be training with IDFG in December, and after that will begin trapping fishers in the Ceded Territory, and potentially on the Reservation itself. Fishers will be equipped with collars that

communicate regularly with satellites, and then e-mail the researchers their coordinates daily. The results of this study will give state and Tribal wildlife managers a wealth of information on the movement patterns and large-scale habitat selection of these elusive carnivores.



Mike Allen Sr. and Bryan Harper at Benawah Creek fish weir

Benawah Creek: New Fish Trap

By Dan Jolibois, Fisheries Technician

This winter season the Fisheries technical crews have been installing a resistance board weir (RBW) type of fish trap in Benawah Creek. This trap is very similar to the RBW trap installed in Lake Creek 3 plus years ago. This year both RBW traps are scheduled to fish over the challenging winter months.

This will be a first time attempt to keep any type of trap fishing over this winter weather period. We will be challenged with heavy freezes and varying types of ice build up, then periods of warmer rains that cause rain-on-snow events that bring high water conditions and flooding. Before the RBW traps, the higher springtime flows caused many problems with keeping a trap securely in place and fishing. The RBW trap design has proven itself over the last 3 seasons, needing no major repairs and minimal maintenance.

To keep even the hardest structure in a stream with all that Mother Nature can throw at it takes some effort. The traps will be checked at least every other day for the possibility of trapping migrating trout and more often when conditions dictate. During periods of heavy ice and increasing water flows the traps will need to be de-iced. As the panels and most other parts are made of heavy plastics, care has to be used not to crack or break the trap parts.

In years past adult trout upstream migrant traps were installed as early in the spring as possible, soon after the seasonal technicians are rehired. Successful trap installation has to be coordinated around moderate

to lower water flows to be installed well. This causes delays in trap installation due to many high flow conditions during this period, which causes many trout to be missed on their upstream migration, and useful data is lost. By using a tougher trap design that hopefully can handle winter conditions and installing it in the fall during lower flows, we bypass the spring higher water level install problems.

Last year the Fisheries Program was able to keep an extra technical position filled during the winter season to assist with RBW trap construction. This winter the same person, Bryan Harper, will use his knowledge of the traps design and construction to assist the trapping operation on both Lake and Benawah creeks through the winter. All the conditions created by frigid air temperatures mixed with freezing water will hinder the traps fish catching ability and structural integrity. Other staff will assist as necessary for safety and relief reasons. We are all hoping for a successful winter trapping session and the first fish. ♦

Whitetail Creek Restoration Project

By Stephanie Hallock, Habitat Biologist

The Coeur d'Alene Tribe Fisheries Program is continuing its effort to improve habitat for westslope cutthroat trout in streams within the reservation. The relationship between fish populations and stream habitat is complex. Trout need spawning, feeding, and rearing habitats. Factors that influence fish distribution include water temperature, velocity, water depth, amount of cover, and substrate composition. All of these factors are influenced by the presence of large woody debris (LWD) in the stream channel. For small streams, LWD is defined as wood that is 5 inches in diameter and 3 ft long. LWD creates distinct habitats lending to habitat "complexity." For example, LWD helps create deep pools by creating dams or scouring the streambed. In riffle areas, where water velocity is highest, LWD creates pockets of lower velocity water, providing areas where fish can rest. LWD creates spawning habitat by trapping important spawning gravels. LWD also provides important cover from predators. Today, we recognize that wood plays an important function in the stream ecosystem.

On the Reservation, lack of large woody debris (LWD), both within the stream channel and the adjacent floodplain, has been identified as a contributor to reduced habitat quantity and quality. Logging, channel straightening, and historic removal have contributed to these low numbers in areas impacted by human activity. In order to increase the amount of LWD present in Reservation streams, the Fisheries Program has begun to implement projects that involve

adding large woody debris (LWD) to sections of stream that have little or no wood present. Placing wood in a channel will simulate what occurred historically. Research currently completed by Tribal staff will develop performance standards for LWD density and frequency for stream within the Reservation (see previous article in 2007 Vol. 11 No 3). These standards will help us prioritize streams for restoration.

The Fisheries Program completed a restoration project that involved the placement of LWD into 1000 feet of lower Whitetail Creek, a tributary to Benewah Creek. Whitetail Creek is an important spawning tributary for westslope cutthroat trout. This creek has a drainage area of 2.9 square miles and an annual flow of around 30 cubic feet per second. Before construction, it was found that there were low levels of LWD present in the channel leading to low habitat diversity. Bank erosion also was occurring because the stream channel had lost its connectivity with the adjacent floodplain.



Eroding bank before restoration

This site was unique in that there were no houses or structures close by that could be at risk if the stream flooded. As a result of these conditions, a project was developed where LWD was placed in the channel to increase habitat complexity, increase channel stability, reduce bank heights (and thus bank erosion), and increase the frequency of overbank flooding consistent with more stable channels. Over a longer timeframe, the objective is to see the stream reconnected to its adjacent floodplain as sediment becomes trapped behind the wood structures to cause an increase in streambed elevation and water surface elevation.

Approximately 20 MBF (about 5 truck loads) of wood was used to create single and multiple log structures for this project. An excavator was used to place the logs in the creek. Portions of the logs were buried to act as anchors for the structures. Other logs

were placed along and across the stream in different configurations to form bank protection structures and dams. Existing vegetation was preserved as much as possible. After wood placements were completed, deciduous trees and grass plugs were planted in disturbed areas. Physical and biological data was collected before construction so that the impact of restoration can be measured. We are very interested in seeing how the placement of LWD changes the stream channel over the next couple years. ♦



Same bank after restoration

Steelhead Trout Distribution

By Jeffery Jordan, Fisheries Biologist

The Coeur d'Alene Tribe Fisheries Program has in the past worked with the Nez Perce Tribe Fish and Wildlife Commission in Lapwai Idaho in receiving steelhead and chinook. While the fish are not available annually they are somewhat regular with providing fish to the Coeur d'Alene Tribe for distribution.

Coeur d'Alene Tribe Fisheries personnel traveled to the Nez Perce Reservation on the 14th, 21st and the 27th of November 2007 to take delivery of fish. The fish come from the Nez Perce Tribes' Oxbow facility on the Clearwater River.

The Nez Perce Tribe graciously provided the Coeur d'Alene Tribe with nearly six hundred steelhead trout with an approximate average weight of seven pounds each.

The fish that do become available are for distribution to the general population. The normal protocol used by Fisheries personnel is to contact the Coeur d'Alene Tribes' Elders Program and Early Childhood Learning Center for their needs. The Fisheries personnel provide these two programs with processed fish (i.e., cleaned). The fish that are distributed to general Reservation community are released in their round form (i.e., un-cleaned) and are

given out from a large tote (cooler) from the back of a company pickup truck.

The Coeur d'Alene Tribe Fisheries Program also smokes fish for various tribal functions, i.e. the annual Coeur d'Alene Tribal Thanksgiving dinner in addition to the Elders Program if fish are available.

Although, it becomes difficult to reach all of those who would like to receive fish, the Coeur d'Alene Tribe Fisheries Program wishes to remain fair and impartial when it comes to distributing the fish that

become available. Therefore, if there are special needs and the fish are available please request fish from the Fisheries Program and we will attempt to get available fish.

Question and comments can be directed to the Coeur d'Alene Tribe Fisheries Program, main office 208-686-5302. ♦

**CHECK OUT 2006/07 PAST ISSUES AT:
<http://www.cdatribe-nsn.gov/fishnews.shtml>**

Responses to Restoration: Measuring Streambank Erosion in Benewah Creek

By Angelo Vitale, Fisheries Biologist

Many articles have been printed in the Watershed Wrap to describe ongoing restoration efforts in the Benewah Creek watershed. These have described various aspects of the 'Eltumish Project' which aims to improve instream habitat and channel function to benefit native westslope cutthroat trout. As this project proceeds and begins to mature, it becomes increasingly important to make the results of monitoring efforts more widely available to help illustrate the overall impact of this important work. In this article, I describe the methods and preliminary results of streambank erosion monitoring comparing several sites on the mainstem of Benewah Creek – one site that was restored in 2005 and one site that remains untreated.

The significance of streambank erosion processes that contribute sediment to streams has often been overlooked or misunderstood. For example, recent studies in the loess area of the Midwest United States, indicated that streambank material contributed as much as 80% of the total sediment load in incised stream channels (Simon et al, 1996). The adverse consequences of increased streambank erosion include accelerated sediment yields, changes in stream channel instability, degradation of the physical and biological function of streams and significant loss of land. To identify streambank erosion rates in Benewah Creek we have used methods developed by Dave Rosgen (2001) that are practical to implement and can be used to predict annual erosion rates that are particularly useful in evaluating our restoration efforts.

At a restored site and an untreated, upstream control site (each site was 500 ft. long), we measured streambank characteristics and hydraulic/gravitational forces that are linked to streambank erosion. The method develops key streambank characteristics (e.g., bank height, rooting depth/density, bank angle, etc.) that are sensitive to the various processes of erosion into a Bank Erosion Hazard Index (BEHI) rating, and likewise, energy distribution measurements that describe how forces converge on streambanks are developed into a Near-Bank Stress (NBS) rating. Annual erosion rates are then estimated and multiplied by the bank height and by a corresponding bank length of a similar condition, providing an estimate of cubic yards and tons of sediment per year (Table 1).

Comparing these sites it is apparent how different they are, both in terms of the total length of eroding streambank and total erosion rate. The total erosion rate translates to 2+ dump truck loads of soil eroded from restored sites annually versus 9+ loads of soil from untreated sites. Using these methods we can demonstrate that total streambank erosion has been reduced by 72% in restored areas compared with untreated areas. This is a significant result when translated to the longer stream reaches that have been treated to date (8,700 ft.) and stream reaches that are untreated and actively eroding (>24,000 ft.).

We are doing additional work this winter to validate these erosion estimates and improve our ability to apply this method to other streams on the Reservation. The use of this approach to predict annual streambank erosion associated with normal high flow, shows excellent promise for management and can be an effective tool in communicating project benefits to landowners. ♦

Table 1. Comparison of estimated erosion rates and total erosion at restored and untreated sites in Benewah Creek, 2007.

| BEHI | NBS | Erosion Rate (ft/yr) | Length of Bank (ft) | Erosion Subtotal (ft³/yr) | Total Erosion (yd³/yr) | (tons/yr) |
|-----------------------|------------|-----------------------------|----------------------------|---|--|------------------|
| Restored Site | | | | | | |
| Moderate | Extreme | 1.4 | 105 | 677.2 | 25.1 | 32.6 |
| Untreated Site | | | | | | |
| High | Extreme | 1.4 | 49.8 | 342.3 | | |
| Moderate | Very Low | 0.05 | 23 | 6.7 | | |
| Low | Extreme | 0.5 | 20 | 44.0 | | |
| Moderate | Extreme | 1.7 | 208 | 2,073.8 | 91.4 | 118.8 |

Restoration Is For The Future Of Fish And Wildlife

By George Aripa, Fisheries field crew supervisor

My primary job for the Fisheries Program is to operate heavy machinery on restoration projects along the tributaries of Coeur d'Alene Lake. I have been employed with the tribe for 18+ years, and have enjoyed every moment of it. For the last few years I have been working on the 'Eltumish Project which is the Coeur d'Alene language name for restoration work taking place on Benewah Creek. This years' project work consisted of restoring 2,500 feet of degraded fish habitat.

Degraded meaning that through habitat studies we have found very few fish want to live in this stretch of the creek. Why? The water is too warm, the pools are to shallow and fine sediments have clogged the gravels. What we have done to the creek is to lengthen it by adding more meanders which in turn slow the water down, and provide a more diverse habitat

including pools, lower gradient riffles and glides where the fish live year round. We also raised the elevation of the creek to help combat head cutting and bank erosion. This is a problem found throughout the Benewah Valley. The other benefit of raising the elevation of the creek is to allow the water to flow over the banks during the spring runoff, which is vital to any waterway. Why would you want the creek to flood? This is a natural occurrence - the water must flow freely so as to not confine the channel and create large high cut banks, add tons of silt to the stream and ultimately reduce the diversity of the fish habitat. After all the heavy equipment work was done on the site we planted thousands of wetland grass plugs, trees and willows, then seeded the site with grass. The field season is officially done until late next spring. Next year we have another 2,200 feet of creek to work on, which will bring the total length of channel to 8,500 feet. ♦

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WINTER SPEAKER EVENTS



2008 JANUARY

January 22nd, Tuesday, 5:30-7:30 p.m. *Hangman Creek Watershed Workgroup*, Tensed Community Center, Tensed ID. Light refreshments provided.

FEBRUARY

February 13th, Wednesday, 5:30-7:30 p.m. *Gearing Up for Gardening*, Rose Creek Longhouse, Worley, ID. Light refreshments provided.

MARCH

March 12th, Wednesday, 5:30-7:30 p.m. *Roundtable discussion of Coeur d'Alene Lake Kokanee* at North Idaho College, Molstead Hall Library, Room 258, Coeur d'Alene ID. Refreshments provided.

QUESTIONS?

Contact CdA Reservation Extension Educator at 208.686.1716

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From All of Us to All of You

Seasons Greetings

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Barbara Scaroni
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Stephanie Hallock
Bruce Kinhead
Jeffery Jordan
George Aripa
Daniel Jolibois
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