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Montana Legislative Services Division

Legislative Environmental Policy Office

July 12, 2010

To: WPIC
From: Joe Kolman
Re: Missouri River cottonwoods

At the request of Sen. Hamlett, there will be a discussion at the July meeting about the regeneration of cottonwood trees along the Wild and Scenic reach of the Missouri River below Fort Benton.

As background, there is attached a briefing paper requested from agencies involved in the regeneration discussion, as well as a news story and an editorial from the Great Falls Tribune.

Please contact me if you have questions.

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DATE: June 29, 2010

FROM: Upper Missouri River Cottonwood Working Group:
Lenny Duberstein, Reclamation
Stan Benes and Gary Slagel, BLM
Janelle Holden, The Wilderness Society
Vicki Marquis, Missouri River Conservation Districts

BRIEFING FOR: Joe Kolman, Montana Water Committee

BACKGROUND: The U. S. Geological Survey (USGS) and the Bureau of Land Management (BLM) have been studying the various factors impacting cottonwood regeneration along the Wild and Scenic reach in cooperation with the U. S. Fish and Wildlife Service (Service), the U. S. Bureau of Reclamation (Reclamation), Pennsylvania Power and Light – Montana, and the University of Montana. One of the factors limiting cottonwood regeneration along this reach is the lack of flood events. Floods help establish new cottonwood trees by depositing silt and seed safely above an elevation where new seedlings would normally be scoured out by ice jams. By modeling historic floods researchers have concluded that a flow of approximately 50,000 cfs (at the Virgelle gaging station) for at least a two day interval every 10 years or so will support natural cottonwood regeneration.

Pallid sturgeon are native to the Missouri River basin and are a listed species under the Endangered Species Act. Reclamation operates several major dams (Clark Canyon Dam, Canyon Ferry Dam, Gibson Dam, and Tiber Dam) in the Missouri River basin above the Corps of Engineers (Corps) Fort Peck Dam. In preparation for entering into formal consultation with the USFWS with respect to continued operation of these facilities, Reclamation has gathered scientific data regarding pallid sturgeon habitat requirements and related hydrology. To date, the biological component of the study indicates a positive correlation between a more natural hydrograph and the spawning success of native fish. Additional hydrologic modeling, which is being developed in collaboration with the Corps, will help identify options and associated impacts on how Reclamation facilities may be utilized to assist in the protection and/or recovery of Pallid sturgeon and riparian ecosystems, while continuing to provide authorized project benefits.

CURRENT STATUS: On December 1-2, 2009, BLM and Reclamation held an Interagency Upper Missouri River Cottonwood workshop in Great Falls, Montana. The objective of the workshop was to identify the status of current research, conservation issues, legal authorities, and restoration projects that are related to the regeneration of cottonwood galleries through the Upper Missouri River Breaks National Monument, and to the restoration of Pallid sturgeon in the Missouri River above Fort Peck Dam. Representatives from various State of Montana agencies, the Wilderness Society (TWS), the Corps, USGS, the Missouri River Conservation Districts Council (MRCDC), landowners, and other interested stakeholders attended the meeting.

On May 27, 2010 another interagency meeting was held in Fort Benton, Montana to provide the public with an update on the various activities and studies. Participants generally supported continued efforts to formulate a multi-agency solution to address riparian health issues of the upper Missouri River. A core working group comprised of representatives from the BLM, Reclamation, the Missouri River Conservation Districts, and The Wilderness Society was

subsequently formed to address key data gaps such as: flood plain mapping; water rights impacts; and, National Environmental Policy Act (NEPA) requirements. To help facilitate their efforts, the core group was initially tasked with drafting a multi-entity Memorandum of Understanding (MOU) to help formalize commitments amongst the various entities to work together towards collaborative solutions in addressing native fish and riparian ecosystem issues in the Upper Missouri River Breaks National Monument. The core group will be meeting to discuss drafting an MOU in July.

This effort that will require considerable upfront work, study, and public involvement. In addition to the lack of flood events, other limiting factors for Cottonwood Regeneration will be considered including enclosures, grazing modifications, projects on tributaries and plantings.

The need to thoroughly engage and inform the public cannot be overemphasized.

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Agencies weigh 'prescribed' flood to save Missouri cottonwoods

By KARL PUCKETT • Tribune Staff Writer • May 29, 2010

FORT BENTON — Mike Merigliano, seated in a six-seat, single-engine airplane high above the Upper Missouri River Breaks National Monument east of here earlier this week, points out a grove of cottonwood trees lining the shore below in an otherwise treeless landscape.

The cottonwoods could be 150 to 200 years old, he said.

"It's kind of an old-folks home for cottonwoods," Merigliano, a plant ecologist with the University of Montana, said of the Missouri.

What one of the wildest stretches of river in America really needs is an infusion of young blood, Merigliano said. As it stands today, not enough new trees are growing up to replace the old giants.

U.S. Bureau of Land Management experts, who manage the monument, say that releasing more water into the 149-mile Wild and Scenic Missouri River, from upstream dams might spur a youth movement, depositing wet beds of sediment that cottonwood seeds need to grow.

Past flood-control efforts are a big factor in the cottonwood population being dominated by old trees.

"It seems like a reasonable thing to do," Stan Benes, field manager for the BLM's office in Lewistown, said of releasing more water to spur cottonwood growth. He noted that science supports it, and no legal barriers prevent it.

Gary Slagel, the BLM's monument manager, said the idea is to allow larger-than-normal releases once every so often in very high-water years.

"That could be 15 years down the road," he said.

BLM officials in Lewistown have requested that the U. S. Bureau of Reclamation, which owns and operates the dams, consider authorizing periodic prescribed flooding in the future.

Experts from federal and state agencies and interest groups gathered in Fort Benton Wednesday to discuss the idea. It was the second meeting in six months focusing on increasing Missouri flows.

At the conclusion of the meeting, the agencies agreed to begin drafting a formal memorandum of understanding to study the issue further, but no decisions were made to begin releasing more water.

"This is still in the very preliminary stages," said Chad Krause, a BLM hydrologist. "There's a lot of stuff that needs to be figured out before any of this could happen — and floodplain modeling is one of those."

An estimated 2,734 acres of mature cottonwoods currently grow in the Wild and Scenic portion of monument, said Mike Scott of the U.S. Geological Survey in Colorado, who also has studied cottonwoods in the Breaks.

A 149-mile stretch of the river, officially designated by Congress as "wild and scenic" in 1976 to preserve its wild, scenic and recreational values, would be targeted if flows are increased, Krause said. The wild and scenic portion falls within the national monument, which was created by a presidential proclamation in 2001.

The last large-scale "recruitment" of cottonwoods

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followed the big flood of 1964, Scott said.

Without future high-water flows — and the establishment of hundreds of acres of new cottonwoods — existing mature forests will progressively dwindle over the next four to five decades until they all but disappear, Scott said.

The iconic trees dominate Western rivers from southern Canada to central Mexico. Scott said if the trees vanish, history and important wildlife habitat would be lost with them.

"In many ways, it's got characteristics of the hardy pioneers who settled the West," Scott said. "It takes advantage of opportunities. It's very tolerant of harsh conditions — although it needs very exacting conditions to grow."

Along some stretches, the Missouri River floodplain is narrower, or "tight," with limited channel movement. That always has limited the fresh sediment deposits cottonwoods need to grow, according to experts.

The journals of explorers Lewis and Clark, who traveled through the region in the early 1800s, confirm that the trees historically were few and far between, Merigliano said.

"It was very sparse, open country," he said.

Only infrequent, large flows can create the site conditions required for successful tree establishment, according to the USGS.

The BOR owns and operates four upstream dams on the Missouri and its tributaries, harnessing flows of water for electricity, irrigation and municipal supplies. Creating intentional floods is not one of the agency's charges.

"It's certainly a different spin to what we're used to," said Dan Jewell, area manager of the BOR's Montana Area Office.

Jewell said that the agency is willing to consider contemporary uses of the water, including increasing flows to help cottonwoods. The BOR, he noted, is in the business of flood *control,* not *prevention.*

But the idea will require a lot more study of how much water can safely be released without impacting landowners, he said.

"Certainly, we would need some direction from Congress to undertake something like that," Jewell said.

The biggest hurdle would be getting additional flows from Canyon Ferry, which is located near Helena, through Great Falls, which has the biggest population base that potentially would be affected by an intentional flood, Jewell said.

If additional flows were allowed, Canyon Ferry would be a likely source, he said. Augmentation from Tiber Dam on the Marias River near Chester would be considered as well, Jewell said.

Experts say 50,000 cubic feet per second of water would be needed at Fort Benton, the start of the 149-mile stretch of the Wild and Scenic Missouri River, to create the necessary conditions. On Wednesday, the river there was flowing at 11,100 cfs.

Before the meeting, Merigliano, who has studied cottonwoods in the Breaks, viewed the trees from an airplane piloted by Bruce Gordon of EcoFlight in a tour arranged by the Wilderness Society of Montana.

One reason the Breaks area was declared a monument in 2001 was because of the towering groves of cottonwoods, which provide habitat for migrating song birds and raptors. It also offers

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cover for recreationists and grazing cattle.

"You could think of the Missouri River as a big cottonwood recycler," Merigliano said.

Freshly deposited or disturbed sediment provides ideal conditions for the cottonwood seeds to germinate, he added, noting that flooding acts like a plow in getting the seeds planted. Tomorrow's cottonwood is today's fish habitat — an island or a sandbar, he said.

But with upstream dams preventing natural flooding, not as many trees are being recycled these days as would be if the river flowed uncontrolled, he said.

"They do live a long time, but eventually they're going to disappear," he said.

Reach Tribune Staff Writer Karl Puckett at 791-1471, 800-438-6600 or kpuckett@greatfallstribune.com.

Cottonwood trees as old as 200 still tower above the Wild and Scenic Missouri River, but the last time a large number of new trees was established is 1964, when the river flooded. Reproduction has occurred since then, but it has been limited, experts say. Now federal agencies are considering opening the river's dams in a "prescribed" flood to spur growth. (TRIBUNE PHOTO/KARL PUCKETT)

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June 4, 2010

Can we save the cottonwoods? Let's study, talk about it

Because cottonwoods are thought to be short-lived compared with many other kinds of trees, it's remarkable that there are groves of the gnarled old behemoths thought to be upward of 200 years old along the Wild and Scenic portion of the Missouri River below Fort Benton.

Plant ecologist Mike Merigliano of the University of Montana goes so far as to describe the heart of the Upper Missouri River Breaks National Monument as a kind of "old folks home for cottonwoods."

But he goes on to note that there's not much in the way of younger trees coming along behind the old fellows, which doesn't bode well for the future of the roughly 2,700-acre cottonwood "forest" scattered along the 149 miles of the Breaks.

The trees have been fighting an uphill battle since the steamboat days when wood hawks mowed down every tree in sight to fuel a few decades of 19th century commerce along the big river.

Homesteaders took their share, too, before dams on the river came along to continue the negative pressure on the big plants.

Judging by the reports of Lewis and Clark, the forest has never been exactly dense along the river.

But Merigliano and others say that unless river flows are allowed to fluctuate more — including the occasional controlled flood — the trees' days are numbered.

"They do live a long time," he said, "but eventually they are going to disappear."

For that reason, we again encourage those managers to continue pursuing the studies and permissions it will take to create the occasional extra-high water that would facilitate cottonwood regeneration and growth.

Water-level fluctuations — which are held to a minimum by the dams on the river — help cottonwoods in several ways.

For one, high water helps get seeds and trees moved to higher ground a short distance away from the static riverbanks. Trees started in that way are more likely to avoid being scoured out by ice floes in winter and spring.

Further, Merigliano says fresh sediment brought by flooding comprises the ideal seedbed for the hardy but finicky young trees.

After a meeting last week, agencies that would be involved agreed to draft a memorandum of understanding to continue studying the issue, including the effects — pro and con — of causing small floods on residents along the river, as well as determining what permissions would be needed to pull it off.

"It's certainly a different spin to what we're used to," said Dan Jewell of the federal Bureau of Reclamation's Montana office.

The science supports periodic high flows, but modern river systems are complicated.

Effects on river-bank developments, hydroelectric power and fisheries are among the concerns.

For now, however, proceeding with study and public discussion is surely worthwhile.