MANAGEMENT PROBLEMS AND OPPORTUNITIES

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The Crooked River basin WIA was developed to address objectives provided in the Missouri Department of Conservation (MDC) Strategic Plan, Fisheries Division Operational Plan (FY 1996-2000), Stream Areas Program Plan and the Stream Access Acquisition Plan. These plans indicate areas of future expanded resource management, public awareness and access needs. Major areas of concern in the Crooked River basin include: Water quality, riparian and aquatic habitat, aquatic communities and recreational use. All goals are of equal importance, however, objectives are listed in order of priority under each goal. This plan only includes those items that MDC can reasonably attain or influence during the next 25 years. Completion of these objectives will depend upon their status in overall Regional and Divisional priorities, as well as the availability of personnel and funds.

GOAL 1: IMPROVE WATER QUALITY AND MAINTAIN OR IMPROVE WATER QUANTITY IN THE CROOKED RIVER BASIN SO THAT ALL STREAMS ARE CAPABLE OF SUPPORTING NATIVE AQUATIC COMMUNITIES.

Status: Streams within the Crooked River basin suffer from several water quality problems associated with point and non-point source pollution. Turbidity and sedimentation from erosion and organic runoff from livestock operations are non-point sources of pollution in the basin. Sewage effluent from waste water treatment facilities is the primary point source pollutant**.** The Conservation Reserve Program (CRP) has reduced the acreage of highly erodible soil that once was in row crop production. Year-to-year renewal of contracts has resulted in CRP acreage enrollment remaining at approximately the same level in the Crooked River basin. There is increased interest in construction of concentrated animal feeding operations that could result in an increase in livestock waste point source runoff.

Objective 1.1: Water quality standards are met in all streams within the basin.

Strategy: Enforcing existing state and federal water quality regulations will help reduce the number of violations that occur. Gathering water quality data within the basin will provide more information about stream health within the basin. This information can be used to provide justification for protection and increased enforcement.

- Review NPDES, 404 and other permits and provide recommendations so compliance with water quality standards are maintained within the basin.
- Collect fish for contaminant analysis for the Missouri Department of Health and cooperate in advising the fishing public on the effects of contaminant levels in fish within the basin.
- Cooperate with other state and federal agencies to investigate fish kill reports and other water quality related problems reported in the basin.
- Monitor water quality and insure compliance with discharge permits. Most of this work is under the jurisdiction of Missouri Department of Natural Resources, but with training, volunteer groups

such as Stream Teams could assist with water quality monitoring and be strong advocates for water quality throughout the basin.

- Inform the public of water quality problems (i.e., sedimentation, livestock runoff and sewage effluent) affecting streams in the basin through media and personal contacts, literature development and distribution, Stream Team promotion, and special or educational events such as National Hunting and Fishing Day.

Objective 1.2: Maintain base flows within the Crooked River basin at or above current levels within the constraints imposed by natural seasonal variations in precipitation.

Strategy: Work closely with agricultural agencies to address concerns related to adequate streamflows within the basin. Work with state and local governments on laws and regulations pertaining to maintenance of base flows.

- Support the development of a Missouri water law that addresses the quantity of water in Missouri streams.
- Provide technical assistance for SALT and EARTH projects as requested by Soil and Water Conservation Districts so base flows can be maintained.
- Inform the public of water quantity problems affecting streams in the basin through media and personal contacts, literature development and distribution, Stream Team promotion and events such as local sport shows, National Hunting and Fishing Day, etc.
- Work with other agencies to reactivate PL-566 projects in the Crooked River basin.
- Work with USACOE on water plans that are developed to insure adequate water availability both qualitatively and quantitatively to sustain healthy fish, forest, and wildlife communities.

GOAL 2: IMPROVE OR MAINTAIN RIPARIAN AND AQUATIC HABITATS IN THE CROOKED RIVER BASIN.

Status: Channelization and levees negatively affect riparian and aquatic habitats through increased stream bed and bank erosion, sedimentation and by reducing wooded corridors, instream cover and pool/riffle habitat complexes. Due to past channelization, some stream channels have down-cut below the root systems of trees so the remaining trees provide little, if any, streambank stability. In addition, landowners in the basin are reluctant to restore 100 feet wide vegetated corridors along each streambank because of perceived losses in row crop acreage.

Objective 2.1: With the exception of very unique situations, eliminate channelization, re-channelization or levee construction projects within the Crooked River basin.

Strategy: Preventing future channel alterations will require a combination of watchdog activities that encourage enforcement of current laws and educational programs. If these activities work, the need for law enforcement action in the future will be reduced.

- Review all 404 and other permits within the basin and provide comments on these applications to reduce impacts of channelization and levee construction.
- Cooperate with MDC Outreach and Education Division in presenting materials related to stream ecology and effects of channelization to elementary and/or secondary schools within the basin.
- Continue working to resolve the conflict over water levels in the Crooked River cutoff.

Objective 2.2: Inform landowners within the Crooked River basin about good stream stewardship practices and the importance of riparian corridors. Efforts to maintain and improve riparian conditions should be concentrated along the mainstem Crooked River and streams in the upper two thirds of the basin, as the best habitat within the Crooked River basin is found in these areas. The entire basin above the Missouri River floodplain is unique in Northwest Missouri, since it is less modified by stream alteration than any other basin in the region.

Strategy: Advertising and promoting stream incentive programs, installing and maintaining demonstration projects and providing educational opportunities regarding stream stewardship will allow landowners to be more aware of the reasons and techniques for protecting streams. Promoting stream incentive programs for improving riparian habitats will likely encourage more landowners to participate.

- Cooperate with Farm Service Agency (FSA), Natural Resources Conservation Service (NRCS) and University Outreach and Extension personnel to promote cost share programs that include streambank and streambed stabilization, alternate watering sources, excluding livestock access, and establishing and maintaining adequate stream corridors.
- Provide recommendations to all landowners who request assistance and are willing to establish and maintain adequate stream corridors.
- Provide stream management workshops for NRCS and University Outreach and Extension staff every five years for those people who have responsibilities for agriculture programs within the Crooked River basin.
- Cooperate with NRCS and Soil and Water Conservation Districts to establish SALT, EARTH, and PL-566 projects within the basin.
- Establish stream management demonstration sites within the basin (including economics (soil saved = dollars saved + better productivity) as this encourages participation).
- Promote sound land management practices that enhance stream quality through landowner workshops and demonstration site tours within the basin.
- Cooperate with MDC Outreach and Education Division in using streams within the basin for aquatic education programs.
- Coordinate and cooperate with Stream Teams to conduct riparian corridor improvement projects (e.g. planting trees).

GOAL 3: MAINTAIN DIVERSE AND ABUNDANT POPULATIONS OF NATIVE AQUATIC ORGANISMS WHILE SUPPORTING ANGLER DEMANDS FOR QUALITY FISHING.

Status: A comprehensive survey of the fishes inhabiting the Crooked River basin is needed in unsampled or inadequately sampled streams. Several species of fish desirable to anglers are found in the basin. Channel catfish, carp and bullhead catfish are the most sought after species, but sufficient samples to assess their populations are lacking. Limited invertebrate sampling has been conducted on the mainstem Crooked River, but a comprehensive study throughout the basin has not been conducted.

Objective 3.1: Assess and maintain native non-game fish populations and aquatic invertebrates at or above present levels throughout the basin.

Strategy: Assess the status of fish and invertebrate communities throughout the basin through a cooperative effort between MDNR, MDC, and local universities. Achieving habitat objectives within the

basin should ensure maintenance and improvement of aquatic communities. To determine if there are changes in aquatic communities within the basin, periodic surveys will need to be conducted with directed effort toward collecting indicator species within the basin.

- Develop standard sampling techniques for assessing fish and aquatic invertebrate communities, including use of indicator species.
- Identify critical habitats for indicator species at all life stages and maintain or enhance these areas as needed to stabilize and/or increase populations. Work to target or direct SALT, EARTH, etc. projects to include these areas.
- Implement a sampling program that monitors diversity and abundance of aquatic communities throughout the basin in cooperation with MDNR and local universities. Through training, Stream Teams could provide additional information on aquatic communities within the basin.
- Enforce regulations pertaining to water quality and quantity, enhance riparian corridors and improve instream habitat to help protect and enhance native aquatic communities within the basin.
- Evaluate potential for habitat improvement and restablishment of Topeka Shiner's in the future.
- Conduct a mussel survey to better inventory the species and numbers found in the Crooked River basin.

Objective 3.2: Evaluate sportfish populations within basin streams and provide recommendations for maintenance and improvement of these populations to a level that satisfies the angling public.

Strategy: Assess the quality of sportfish populations and provide recommendations for the enhancement of populations through regulations, habitat improvement or stocking. A creel survey to determine angler use, harvest and attitudes should be done in the Crooked River basin. This information would be of utility in managing sportfish populations, and it would provide guidance for future management within the basin.

- Conduct a creel survey to determine angler use, harvest and attitudes in the basin.
- Develop a standardized sampling method and implement a monitoring program to collect trend data to be used in evaluating and managing basin sportfish populations.
- Identify critical habitats for sportfish at all life stages and maintain or enhance these areas as needed to increase production.
- Improve populations of sportfish through regulations and habitat improvements once population objectives have been determined.
- Increase awareness of the recreational potential of fishes other than sportfish such as common carp, suckers, buffalo, gar and freshwater drum through articles in local newspapers, outdoor magazines and/or a possible *Missouri Conservationist* magazine article.

GOAL 4: INCREASE PUBLIC APPRECIATION FOR STREAM RESOURCES IN THE CROOKED RIVER BASIN.

Status: Most citizens in the region lack an understanding and appreciation for the importance of stream resources. There is little regard for the well-being of streams within the basin.

Objective 4.1: Increase the level of public understanding of local stream resources and proper stream management practices.

Strategy: Increasing public awareness and knowledge of stream values should result in improvements in the level of appreciation for local stream resources. Enhanced awareness of streams within the basin should result in heightened concern about stream quality.

- Promote formation of Stream Teams within the basin through contacts with local civic organizations and schools.
- Locate local streams within the basin that are near schools that also possess adequate access for field trips.
- Cooperate with the NRCS, Universities, and the MDC Outreach and Education Division in using local streams in the basin for aquatic education programs.
- Promote the values of stream resources within the basin through local newspaper articles, radio, and television.
- Evaluate streams in the Crooked River basin and nominate a reach for designation as an outstanding state water, and/or designated as an aquatic natural area (i.e. remnant prairie stream ecosystem).
- Promote trash dump clean-up and policing using school groups and stream teams.

GOAL 5: INCREASE RECREATIONAL USE OF STREAMS IN THE CROOKED RIVER BASIN.

Status: Turbid water, steep banks, intensively farmed land and limited access combine to limit recreation associated with basin streams. The Crooked River is not floatable at certain times and this also discourages visitation. Scenic areas are found in the basin, and with restoration of wooded corridors, increased public awareness and better access, increases in use should be possible.

Objective 5.1: Increase recreational opportunities on and along streams within the basin.

Strategy: The MDC strategic plan calls for an increase in stream use to accommodate an overall increase in the level of use as construction of new reservoirs decline. Public satisfaction with existing recreational opportunities associated with streams in the basin needs to be determined. In addition, future acquisition sites, facilities and recreational opportunities should be identified.

- Conduct creel, recreational use and needs surveys periodically (at a minimum every 10 years) to determine public opinion and needs.
- Continue acquisition and development of stream access and frontage sites in the basin based on Stream Areas Program Strategic Plan and from Northwest Region MDC Fisheries staff recommendations. Aquire an access site near Elmira to allow canoeing on a Northwest Missouri stream when water conditions are optimum for floating.
- Increase recreational use at MDC sites in the basin using management plans tailored to take advantage of each areas natural features.

Objective 5.2: Recreationists have access to information on stream use opportunities in the basin.

Strategy: The public may not be aware of the recreational opportunities that currently exist in the basin. Publicity should increase use of basin streams. This in turn could lead to increased appreciation of the resource and foster the opinion that Crooked River basin streams are worth protecting.

- Publicize recreational opportunities in the Crooked River basin in the local newspaper, radio and

television programs and the MDC's web page.

- Include information from the Crooked River basin in publications that promote hunting, fishing, floating, hiking and other activities related to stream resources.
- Emphasize stream resources at public events such as local sport shows, fairs, and National Hunting and Fishing Day.