NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE STANDARD

STREAM HABITAT IMPROVEMENT AND MANAGEMENT

(Ac.)

CODE 395

DEFINITION

Maintain, improve or restore physical, chemical and biological functions of a stream, and its associated riparian zone, necessary for meeting the life history requirements of desired aquatic species.

PURPOSE

- Provide suitable habitat for desired fish and other aquatic species.
- Provide stream channel and associated riparian conditions that maintain stream corridor ecological processes and hydrological connections of diverse stream habitat types important to aquatic species.

CONDITIONS WHERE PRACTICE APPLIES

All streams and their adjoining backwaters, floodplains, associated wetlands, and riparian areas where geomorphic conditions or habitat deficiencies limit reproduction, growth, survival and diversity of aquatic species.

CRITERIA

I. Planned stream habitat improvements will:

- address the aquatic species and life history stages for which the stream is being managed,
- be based on a site-specific assessment of local hydrology, channel morphology, geomorphic setting, fish and other aquatic species present, riparian and floodplain conditions, and any habitat limitations including water quantity and quality, food supply, and restriction of upstream and downstream movement of aquatic species using the NRCS Stream Visual Assessment Protocol, Version 2 (FOTG Section III) or comparable evaluation tool established in Section III of the FOTG, *and*
- when applied, result in a conservation system that meets or exceeds the minimum quality criteria for stream habitat established in FOTG Section III.

II. Manage adjoining riparian areas to support a diverse vegetation community suitable for the site conditions and desired ecological benefits. Such benefits include stream temperature moderation, recruitment of instream large wood and fine organic matter, input of riparian nutrients, habitat for terrestrial insects and other riparian dependent species, streambank integrity, and filtration of contaminants from surface runoff.

III. Design in-stream structures to be compatible with the dynamic nature of streams and rivers, facilitate natural geomorphic recovery when possible, and minimize disruption of recreational and other traditional uses of the stream corridor.

IV. Structures installed for the purposes of this standard will not:

- impede or prevent passage of fish and other aquatic organisms at any time, unless intended to isolate populations of native species of conservation concern,
- cause excessive bank erosion,
- cause unintentional lateral migration, aggradation or degradation of the channel,
- hinder channel-floodplain interactions.

V. Where practical, restore or maintain stream habitat and channel forming processes such as natural flow regime, meander migration, sediment transport, recruitment and storage of large wood, and floodplain interactions with the stream.

VI. All stream and riparian activities will occur within state and federal guidelines with regard to timing of spawning, incubation, and rearing of aquatic organisms, and breeding and nesting of terrestrial organisms.

VII. Manage livestock to sustain a healthy stream corridor and associated habitats.

CONSIDERATIONS

Any stream habitat management project is most effective when applied within the context of overall watershed conditions and with clear objectives for stream management goals. Stream habitat management provisions should be planned in relation to other land uses that may affect stream corridors.

Before designing and implementing stream habitat improvements, consider the known or expected concerns within the watershed, such as: point and non-point source pollution; water diversions; and land management activities likely to influence stream habitat conditions. Additional measures that should be taken singularly or in combination to improve stream habitat include:

1. Complete a general assessment of watershed conditions that are likely to affect the functions of the stream and its riparian area.
2. Incorporate stream habitat improvements into a conservation plan that addresses soil quality, prescribed grazing, nutrient management, pest management, and other management practices for reducing non-point sources of pollution.
3. Provide fish passage upstream and downstream and allow movement of other aquatic species and organic matter to the extent possible and when compatible with state and federal fish management objectives using NRCS practice (396) Aquatic Organism Passage.
4. Reduce or manage excessive runoff due to watershed development, roads or land-use activities.
5. Restore or protect riparian and floodplain vegetation and associated riverine wetlands.
6. Maintain adequate in-stream flows to sustain diverse habitats for fish and other aquatic species, especially during critical life history stages of spawning, incubation and rearing.
7. Provide heterogeneous and complex physical habitat components consistent with the physiographic setting and important to fish and other aquatic species in the watershed. These include suitable spawning substrates, structural elements such as boulders and/or large wood where appropriate, resting pools, overhead cover, and diverse riparian plant communities.
8. Provide instream barriers to exclude aquatic nuisance species from upstream habitats where prescribed by state and federal fish management agencies to protect native fish populations.
9. Provide screens on water pumps, diversion ditches, or any area where unintentional entrainment of aquatic species is likely to occur.
10. Improve floodplain-to-channel connectivity for development of seasonal or permanent backwater, wetland and off-channel habitats consistent with the local climate and hydrology of the stream.
11. Maintain natural surface water, hyporheic, and ground water interactions to the extent possible.
12. Control spread of exotic plant/animal species.
13. Manage recreational and other land use activities to minimize impacts on stream banks, riparian vegetation and water quality.

PLANS AND SPECIFICATIONS

Site specific planning for this practice shall follow the Standard and Specifications, and be recorded using the appropriate, approved job sheet(s). Narrative statements in the conservation plan or other documentation may provide supplemental information.

In addition to conservation plan requirements, the plan shall identify and describe:

- detailed goals and objectives,
- the baseline (pre-treatment) condition,
- identify the structural and vegetative implementation actions necessary to achieve the goals and objectives,
- management actions necessary to achieve the goals and objectives. Including the method, timing and intensity of each action.
- the dates and sequence in which improvements or management actions will be completed,
- the location and extent of stream modification,
- a vegetation planting plan that includes the riparian plant species, stocking rates, site preparation, transplant care, and planting dates if needed to accomplish the planned purpose,
- drawings to illustrate installation or implementation requirements, and
- monitoring guidelines for evaluating the effectiveness of the conservation actions.

OPERATION AND MAINTENANCE

The following actions shall be carried out to ensure that this practice functions as intended. These actions include normal repetitive activities in the application and use of the practice (operation), and repair and upkeep of the practice (maintenance):

- Conditions shall be evaluated and compared to desired conditions on a regular basis; to be able to quickly adjust the conservation plan and ensure the desired habitat conditions are met. Specify the appropriate timing in the Operation & Maintenance schedule.
- Post-project monitoring and evaluation of stream and riparian habitat conditions shall be conducted to determine if actions implemented are providing for management of the stream corridor habitats as planned.
- Annually inspect and repair structural or vegetative components of this practice. Including but not limited to: streambank or streambed instability, control of concentrated flow erosion or mass soil movement. It is recommended to also inspect after any major flow or storm events.
- Any repair actions, if needed, shall comply with state and federal guidelines for protecting spawning, incubation and rearing times of aquatic species and breeding and nesting times of terrestrial species
- Any adjustments to treatments and/or management must be made in consultation with the local NRCS conservationist.

REFERENCES

Bureau of Land Management. 1998. Riparian Area Management: A User Guide to Assessing Proper Functioning Condition and the Supporting Science for Lotic Areas. TR-1737-15.

Federal Interagency Stream Restoration Working Group (FISRWG). 1998. National Engineering Handbook 653 Stream Corridor Restoration: Principles, Processes and Practices.

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NRCS. 2009. National Biology Handbook Part 614, Subpart B. Stream Visual Assessment Protocol. Version 2.

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Roni, P. 2005. Monitoring stream and watershed restoration. American Fisheries Society, Bethesda, MD.