

## **Watershed – Desired Condition (Draft version 4.0)**

### **General**

Watersheds have high geomorphic, hydrologic and biotic integrity relative to their natural potential condition<sup>1</sup>. The drainage network is generally stable. Physical, chemical and biologic conditions indicate that soil, aquatic and riparian systems are functional in terms of supporting State designated beneficial<sup>2</sup> uses<sup>3</sup>. Watersheds, stream channels, riparian areas and wetlands have a level of stability that can absorb and reduce the impacts from floods and other disturbances without producing rapid erosional changes in the system. Watershed processes are operating within their perceived natural range of variability and respond to disturbances with a trend toward the watershed's "norm" in a reasonable time period. Favorable conditions of water flow<sup>4</sup> occur in streams, rivers and lakes to fully support biological resources and effective discharges.<sup>5</sup>

### **Riparian and Wetland Areas**

Riparian and wetland plant communities found in conjunction with perennial, ephemeral and intermittent waters are properly functioning for their natural potential condition. Plant communities are healthy, self-perpetuating and contain a diverse mix of desired species in varied structural stages. These communities are resistant to rapid change from large disturbances such as floods and capable of maintaining themselves during dry periods. Exotic vegetative species and noxious weeds are rare or absent.

Riparian areas and wetlands store and release enough water to maintain favorable conditions of water flow. Vegetative cover on channel banks, wetland areas, and shorelines is sufficient to catch sediment, prevent erosion, stabilize stream banks, and promote floodplain development. Riparian vegetation provides wildlife habitats, stream shading, in-channel woody material, aesthetic values and other ecosystem functions (see also Vegetation Desired Condition)

### **Stream Channels and Floodplains**

Stream channels are linked to their floodplains and maintain a seasonal water level elevation in which the bank full discharge<sup>6</sup> accesses the floodplain regularly, thereby recharging riparian aquifers, alleviating spring flood effects and providing late season stream flows and cool water temperatures necessary to fully support designated beneficial uses. Sediment deposits from over bank floods allow floodplain development and the propagation of flood dependent species such as cottonwood. Channel width-to-depth ratios, entrenchment ratios, slope and sinuosity are commensurate with the appropriate channel type and capability of the stream.

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<sup>1</sup> Natural potential condition and ecological capability are the two suggestions here. What's your vote?

<sup>2</sup> Beneficial uses, both consumptive and non-consumptive could be defined in the glossary.

<sup>3</sup> Concepts in these first sentences are taken from FSM 2521.1. Comments from the R.O. suggested it is important to know that there is a hierarchy or nesting, i.e. that there's something higher up to which any planning statement can anchor to, all the way to the FS mission statement. In this case, since watershed health or watershed integrity (previous terms used in this DC) are not defined anywhere in our current policies/manuals; watershed condition, class 1 (FSM 2521.1) was suggested as a basis or at least a starting point to anchor this DC to.

<sup>4</sup> From Guiding Principles for Water Resource Management, principle #2 and Boise Ajudication team edits.

<sup>5</sup> Effective discharge could be defined here in text or in a glossary. Some key concepts with effective discharge are: 1.5 yr average occurrence, channel maintainance, sediment transport, aquifer recharge, **others?**

<sup>6</sup> Define as a glossary term.

Stream channels and floodplains are in proper functioning condition consistent with the in-situ climate, basin morphology, geology, soil, water, vegetation, wildlife and management activities. Although stream channels and floodplains are ever changing, they are resilient to accelerated changes from management activities or other disturbances. The water balance between each stream and its watershed allows for the natural frequency and magnitude of effective discharges, base flows and flood flows.

## **Soils**

Soils have protective ground cover, organic matter and coarse woody material commensurate with the soil type. Vegetative cover and litter is sufficient to prevent soil movement and maintain soil productivity. Soils have adequate physical properties for vegetative growth, nutrient cycling and soil-hydrologic function. Physical, chemical and biological processes in most soils function similarly to soils that have not been detrimentally disturbed. Soil-hydrologic function and productivity in riparian areas and wetlands provides a filter for water quality and a sponge which stores and releases water quantity.

Microbiotic crusts are present, protected, or encouraged to re-establish. Microbiotic crusts (also known as cryptogamic, cryptobiotic, or microphytic crusts) are formed by living organisms and their by-products, creating a crust of soil particles bound together by organic materials that limit erosion and contribute to soil nutrients. Microbiotic crusts are composed of combinations of cyanobacteria (photosynthetic bacteria), green and brown algae, mosses, lichens, liverworts, fungi, and bacteria (see also Vegetation Desired Condition).

## **Aquatic Biota**

Soils, riparian areas, and stream channels function properly to provide habitats that support a variety of aquatic and semi-aquatic species, including desired fish, amphibian and macro-invertebrate communities. Physical habitat characteristics such as bank stability, pool/riffle ratio, pool depths, water temperature, and substrate composition are adequate to support and sustain all life stages of desired aquatic species.

Aquatic habitats and watershed conditions support the long-term sustainability<sup>7</sup> of native aquatic species, such as Bonneville cutthroat trout and Colorado River cutthroat trout. Watersheds that contain native cutthroat trout populations or other important fish communities (e.g. state sensitive species, trophy fisheries, unique fish community structure), maintain and promote the long term sustainability of these unique aquatic resources. Metapopulations are well connected. Cold water fisheries habitat is adequate to sustain desired fish species. Aquatic habitats promote native species composition and aquatic nuisance species are rare or absent.

## **Municipal Watersheds**

Municipal supply watersheds<sup>8</sup> provide high quality water for the designated communities and beneficial uses, in quantities appropriate for that watershed. Multiple uses within these watersheds are consistent with high water quality. Water conveyance facilities protect watershed values and have appropriate access.

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<sup>7</sup> The term viability was removed here because of the baggage and implications it carried from past planning regulations.

<sup>8</sup> Strategy items related to managing municipal watersheds will be moved to the strategy/objectives section of the Forest Plan.