

Fessenden Branch

Fessenden Branch rises in northcentral Kerr County about 5 miles northeast of Mountain Home. The stream flows south for about 5 miles to its confluence with Johnson Creek at the Heart of the Hills Research Station (TPWD). The stream is intermittent for most of this distance until the outflow from Fessenden Springs (Ellebracht Springs²), enters the stream about 1 mile above the confluence with Johnson Creek. The reach from Johnson Creek to Fessenden Springs is the ecologically significant stream segment (Fig. 12). It is within the Edwards Plateau ecoregion. This reach is perennial. The ecological significance is based upon the following criteria:

1. Biological function - This perennial segment of Fessenden Branch supports a riparian gallery forest consisting of sycamore, bald cypress, oaks, Ashe juniper, black willow, and many other trees and shrubs (Fig. 14). These habitats are very important to wildlife, especially birds. They also are important to the aquatic stream habitats because they filter upland runoff and shade the stream and regulate water temperature.
2. Hydrologic function – Fessenden Springs (Figs. 15&16) contribute from 6 cfs to 24 cfs of baseflow to Fessenden Branch^{2, 13}. These springs did not cease flowing during the drought of record in the 1950s. The two springs flow from the Comanche Peak Limestone of the Edwards-Trinity (Plateau) Aquifer. A significant proportion of the baseflow of Johnson Creek is provided by Fessenden Branch. In turn, Johnson Creek contributes to the baseflow of the Guadalupe River. The riparian habitats function to improve the quality of runoff and groundwater discharge into the river, attenuate peak flood flows, and to some extent, stabilize base flows. The segment is entirely within the Edwards Aquifer drainage area.
3. Riparian conservation area – Heart of the Hills Fisheries Research Station (TPWD- Inland Fisheries) derives all of its water from Fessenden Springs via a canal. The existing water right consists of a continuous diversion of 6,800 acre ft./yr. and 400 acre ft./yr. of consumptive use¹³. Important archeological resources are located on TPWD property at Fessenden Springs. The Research Station has been nominated as a site on the Heart of Texas Wildlife Trail.
4. High water quality/exceptional aquatic life/high aesthetic value – Most of the baseflow of the Fessenden Branch segment comes from Fessenden Springs and is very high quality water. As mentioned above, this flow makes up a significant proportion of the Johnson Creek baseflow below the confluence with Fessenden Branch.
5. Threatened or endangered species/unique communities – The following rare species associated with aquatic or riparian habitats may occur in or along this segment although most would not be restricted only to the segment habitats: Zone-tailed hawk (St.T), Golden-cheeked warbler (Fed.E, St.E), Black-capped vireo (Fed. E, St.E), Cagle’s map turtle (Fed.Candidate, category 1), Tobusch fishhook cactus (Fed.E, St.E).



Figure 14. Old SH 27 bridge on Fessenden Branch below Fessenden Springs (11/22/00)



Figure 15. Fessenden Springs (center) and impoundment at TPWD Heart of the Hills Research Station (11/22/00).



Figure 16. Fessenden Springs (top center) and two small impoundments at the springs and a larger impoundment on Fessenden Branch (11/22/00).