

Will fencing floodplain and riverine wetlands from feral pig damage conserve fish community values?

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Abstract

Installation of feral pig (*Sus scrofa*) exclusion fences to conserve and rehabilitate coastal floodplain habitat for fish production and water quality services remains untested. Twenty-one floodplain and riverine wetlands in the Archer River catchment (north Queensland) were surveyed during post-wet (June-August) and late-dry season (November-December) in 2016, 2017 and 2018, using a fyke net soaked overnight (~14-15hrs) to test: 1) whether the fish assemblage are similar in wetlands with and without fences; and 2) whether specific environmental conditions influence fish composition between fenced and unfenced wetlands. A total of 6,353 fish representing twenty-six species from 15 families were captured. There were no wetland differences in fish assemblages across seasons, years and for fenced and unfenced (PERMANOVA, Pseudo-F <0.589, P<0.84). Interestingly the late-dry season fish were far smaller compared to post-wet season fish: a strategy presumably in place to maximise rapid disposal following rain and floodplain connectivity. In each wetland a calibrated Hydrolab was deployed (between 2-4 days, with 20min logging) in the epilimnion (0.2m) and revealed distinct diel water quality cycling of temperature, dissolved oxygen and pH (conductivity represented freshwater wetlands), which was more obvious in the late-dry season survey because of extreme summer conditions. Water quality varied among wetlands in terms of the daily amplitude and extent of daily photosynthesis recovery, which highlights the need to consider local conditions and that applying general assumptions around water quality conditions for these types of wetlands is problematic for managers. Though many fish access wetlands during wet season connection, the seasonal effect of reduced water level conditions seems more over-improvised when compared to whether fences are installed, as all wetlands supported few, juvenile, or no fish species because they had dried completely regardless of the presence of fences.

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Table 1 Fish taxa identified in the Archer River.pdf available at <https://authorea.com/users/391897/articles/520104-will-fencing-floodplain-and-riverine-wetlands-from-feral-pig-damage-conserve-fish-community-values>