Wetlands are degraded around the world. Sometimes these large areas become a focus for restoration. We investigated the use of remote sensing to measure the success of restoration in the Macquarie Marshes at the Pillicawarrina Addition. This area was once cultivated for wheat and cleared for grazing, with paddocks having different land use histories. The Pillicawarrina addition was purchased in 2009 by the NSW and Australian governments, along with its water license. It has become a focus for rehabilitation.

We compared remotely sensed signatures of vegetation in the restoration site to similar natural vegetation in the nearby Macquarie Marshes Nature Reserve, estimating amounts of bare ground, green and dead/woody material over three time periods: pre-cultivation (1988-96), peak cultivation (and Millennium Drought; 2004-7) and post-restoration (2010-15). We measured how similar each pixel (30x30m) on Pillicawarrina was to nearby river red gum and lignum communities in the Nature Reserve. Further, using vegetation canopy heights from LiDAR surveys, we compared how vegetation height changed from peak-cultivation to post-restoration, relative to undisturbed river red gum stands on Pillicawarrina.

**Key Outcomes:** Remote sensing allowed us to show considerable differences over time in vegetation before and after cropping. These differences primarily reflected land use intensity and the positive effect of inundation with floods.

**Recommendation:** Remote sensing provides considerable opportunity for measuring restoration success of floodplain communities, over large spatial and long temporal scales, with opportunity for further developments.