CONSTRUCTED TREATMENT WETLANDS VEGETATION MANAGEMENT IMPACTS ON MOSQUITO ABUNDANCE

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Vegetation management is an important component of mosquito control in constructed treatment wetlands. In treatment wetlands that utilize the water quality enhancement characteristics of emergent macrophytes, periodic management is required, including drying the pond, knocking down the vegetation, and re-flooding. Large mats of decaying vegetation are left and, in addition to providing a carbon source for nitrifying bacteria, provide optimal mosquito habitat. We collected data on larval mosquito populations in ten ponds in the Prado constructed wetlands (Norco, CA). Five of these ponds were established un-manipulated ponds and five of these ponds had undergone drying, knockdown, and re-flooding. Prior to knockdown the ponds were covered with dense emergent vegetation. More mosquito larvae were collected in manipulated ponds than in established ponds for a period of two months post-inundation. The effect of drying time of the downed vegetation on attractiveness of the water to colonizing mosquitoes was studied in wading pools using four treatments: Vegetation aged zero weeks, two weeks, or five weeks prior to inundation , and a treatment without vegetation. Culex tarsalis was the most abundant larval mosquito collected in pools containing vegetation aged two weeks. Other Culicidae colonized the pools but none showed as clear a response to the treatment. Recommendations for vegetation management, including timing of knockdown and re-flood are presented.