The African witchweed (Striga spp.) and lepidopteran stemborers are two major biotic constraints to the efficient production of maize in sub-Saharan Africa. Previous studies had shown the value of intercropping maize with *Desmodium uncinatum* in the control of both pests. The current study was conducted to assess the potential role of other *Desmodium* spp., adapted to different agro-ecologies, in combined control of both pests in Kenya. Treatments consisted of intercropped plots of a Striga hermonthica- and stemborer-susceptible maize variety and one Desmodium sp. or cowpea, with a maize monocrop plot included as a control. S. hermonthica counts and stemborer damage to maize plants were significantly reduced in maize-desmodium intercrops (by up to 99.2% and 74.7%, respectively) than in a maize monocrop and a maize cowpea intercrop. Similarly, maize plant height and grain yields were significantly higher (by up to 103.2% and 511.1%, respectively) in maize—desmodium intercrops than in maize monocrops or maize—cowpea intercrops. These results confirmed earlier findings that intercropping maize with D. uncinatum effectively suppressed S. hermonthica and stemborer infestations in maize resulting in higher crop yields. They also demonstrate that the other *Desmodium* spp. assessed in the current study have similar effects as D. uncinatum, indicating comparable phytochemical and other relevant attributes in these species. Overall results indicate the suitability of the Desmodium spp. for the control of both S. hermonthica and stemborers in maize.