EFFECT OF BUCKTHORN (RHAMNUS CATHARTICA) ON THE TREE COMMUNITY OF AN EASTERN SOUTH DAKOTA WOODLOT

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ABSTRACT

Buckthorn (Rhamnus cathartica) is a non-native woody shrub that invades woodlands and swamps of many regions of the northern United States. Studies in other states have shown that Buckthorn crowds the forest understory and greatly affects the recruitment of native tree species. We examined the frequency and dominance of tree species in a 7 hectare woodlot located within a Waterfowl Production Area in Lake County, South Dakota. We summarized data collected by ecology classes at Dakota State University over a 10 year period. Tree abundance and size were estimated using point quarter plotless sampling procedures. Over the 10 year time period, Buckthorn replaced Green Ash (Fraxinus pennsylvanica) as the most abundant tree species. Because Green Ash trees have larger diameters, it is still the most dominant species. However, Buckthorn dominance is increasing through abundance and growth in basal diameter over time. Young Buckthorn trees are increasing, but very few small diameter native trees are found. We show that the presence of Buckthorn will have dramatic effects on the future species composition of the woodlot through a decrease in the replacement of the large diameter native species such as ash and hackberry (Celtis occidentalis). Minnesota and other nearby states have instituted plans to remove existing populations and control the spread of Buckthorn. Our data demonstrate that South Dakota also needs to take action before the tree diversity of forests, shelterbelts and woodlots is severely reduced.