



Fig. 5.2. Stages of stand development that occur after a major disturbance that destroys all or most of the parent stand. *Stand initiation stage:* immediately after the disturbance, pre-established reproduction grows rapidly and new trees and other plants appear. In oak stands this stage typically lasts 10–20 years. *Stem exclusion stage:* no new trees appear and many die from crowding. Trees are well stratified into crown classes by the end of this period. This stage usually begins after the stand reaches 10 years of age and concludes before age 70. *Understorey reinitiation stage:* tree reproduction becomes re-established under the maturing overstorey. Re-establishment of trees in the understorey is facilitated by the death of individual trees in the main canopy. Canopy gaps are of sufficient size and frequency to significantly increase light on the forest floor. This stage typically begins after age 50 and concludes before age 120. *Complex stage:* natural mortality of large overstorey trees produces irregular canopy gaps and accelerates the recruitment of reproduction and sub-canopy trees into the overstorey and main canopy, respectively. This stage marks the transition from an even-aged stand to an uneven-aged stand. Oak forests typically require 100 years or longer to reach the complex stage of development. The stated durations for the four stages of stand development are representative of oak forests of the eastern United States and assume that no significant stand-scale disturbances occur. Actual durations of stages of development vary with species composition, site productivity and other factors. (Adapted from Oliver and Larson, 1996; Oliver, 1997.)