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**PE-1 Size structures and self-thinning of a mangrove *Kandelia obovata* stand
in Manko Wetland, Okinawa Island**

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Size structures of a *Kandelia obovata* stand were monitored for 3 years from 2004 to 2006. Permanent plot of a 125 m belt-transect (5 m wide) was established perpendicularly to river current. Growth parameters, such as tree height H , stem diameter at 10 % of the height $D_{0.1H}$, crown depth C_d and crown diameter R , were measured in 25 subplots. The standard deviation of H decreased with stand growth, which means that the variation of H becomes small with stand growth, whereas the standard deviation of phytomass w increased, which means that the variation of w becomes large with stand growth. The standard deviation of $D_{0.1H}$ was constant, which means that the variation of $D_{0.1H}$ is stable. The skewness of the frequency distributions of $D_{0.1H}$ and w showed positive values, which indicates that the distributions are an L-shape. On the contrary, the skewness of H showed a negative value, which indicates that the distribution is a J-shape. The skewness of H decreased with time, which indicates that lower trees died as the stand grew. Sperman's rank correlation coefficient of H between successive 2-years periods decreased, which indicates that tree height array changes with stand growth. In contrast, the rank correlation coefficient of $D_{0.1H}$ and w was constant, which means that their rankings are in a similar arrangement. C_d/R ratio significantly decreased year by year, which indicates that crown shape changes from thick type to thin type with stand growth. The C_d/R ratio of dead trees was about twice as much as that of living trees, which means that trees having thicker crown tend to die. The tree density decreased year by year, while mean aboveground phytomass increased. The exponent value of the self-thinning line was found to be -1.44, which can be regarded as evidence in favor of the -3/2 power law of self-thinning.

Keywords: size variation, stand growth, *Kandelia obovata*