The purpose of this model is to simulate the distribution and biomass of common reeds during the growing season.

Model running environment: MATLAB R2016b.

Model contains two main .exe files

1. "wentai.exe": Simulation of steady state of common reeds' distribution based on water depth;



2. "x1111.exe": Simulation of the distribution and biomass of common reeds during the growing season.



- 1) Input of "wentai.exe":
- a) Use ArcGIS to generate DEM maps of the research lake, name it "idw_lake30.tiff" and put in "/reedxie/";



b) Open "reedxie/wentaixishu.csv". Enter the average water level of the lake in the simulation year (1,1), and then save the csv.



- 2) Run "wentai.exe":
- a) Double-click to open "reedxie/wentai.exe";
- b) Click button "Run" until the distribution has no significant changes;
- c) Record the number, the steady state year number, in the upper left corner at this time;
- d) Click button "Quit".



3) Input of "x1111.exe":

a) Open "reedxie/changshu.csv". Enter the steady state year number (1,A), the intrinsic growth rate (month⁻¹) (1:7, B), the carrying capacity (g/m²) (1,C), the parameter in the Hill equation (Coops et al., 2004; Zhao, 2012) (p=2,4, or 6)(1,D), and the semi-biomass loss corresponding to the submerged depth (m) (1,E) and the maximum biomass loss related to the water depth (g/m²/month) (120, 130, 140, 150, 160, or 170)(1,F), then save the csv.



b) Open "reedxie/waterlevel.csv". Enter the average water level of the lake in each month, then save the csv.



c) Double-click to open "reedxie/x1111.exe";



d) Find result in "reedxie/case"